DETAILED ACTION

Claims 1, 4-7, 20-22, 26, 27, 54 and 57-60 are pending.

Applicants response file 5 March 2010 has been received and entered in the application.

Priority

This application is a continuation in part of application 09/421,131 dated October 19, 1999.

Action Summary

Claims 1, 4-7, 20-22, 26, 27, 54 and 57-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diehl (EP0505374B1) of record and Tulin-Silver (U.S. Patent 5,508,282) in view of Makino et al. (US Patent No. 4789667) and in view of Kuhrt et al. (Virucidal Activity of Glutaric Acid and Evidence for Dual Mechanism of Action, Antimicrobial Agents and Chemotherapy, Dec. 1984, pp. 924-927), and in further view of "Dissociation Constants of Organic Acids and Bases", in CRC Handbook of Chemistry and Physics, Version 1996 (77th Edition), David R. Lide, ed., Taylor and Francis, Boca Raton, FL. pp.3-15 and 3-173) all are of record is maintained.

Response to Arguments

Applicants argue that Diehl does not teach or suggest a method for treating cold or influenza virsues wherein the method comprises the step of spraying into the nasal turbinates a composition comprising from about 1% to about 20% pyroglutamic acid and from about 0.01% to about 10% organic acid having a dissociation constant from about 3.0 to about 5.0 and a pH value from about 3.5 to about 5.5 on the nasal tissues. This argument has been fully considered but has not been found persuasive. Diehl teaches, on page 2, a pharmacological composition for treatment of the common cold by spraying said composition into the oral cavity (with mucosal absorption of the composition posited as the means of administration). The composition comprises vitamin C (ascorbic acid) and a non-toxic zinc salt. In example I Table 1 Diehl teaches a suitable zinc-vitamin C composition that includes pharmaceutical grade water, ascorbic acid (1.64% by weight), sodium bicarbonate (0.14% by weight), glycerine, potassium sorbate, EDTA, zinc gluconate (1.09% by weight), L-lysine, glycine, fruit juice, sucrose, magnasweet, tween-80, trace bioflavonoids, orange flavoring and peppermint oil. Tulin-Silver teaches a composition comprising of Vitamin C (ascorbic acid) from about 15 mg to about 300 mg and zinc in the amount of 0.50 mg (column 4, lines 15-35). Tulin-Silver teach that such composition is for the treatment of relieving and shortening the duration of inflamed nasal membrane turbinates (which include allergic, infectious, vasomotor, atrophic, hormonally-induced vasomotor instability and non-allergic causes); nasal and sinus congestion (such as that in sinus headaches associated with acute or chronic sinusitis), acute upper respiratory infections (common colds), acute or chronic allergy flare-ups of the nose, and/or acute or chronic non-allergic rhinosinusitis (column

1, lines 1-24). Tulin-Silver's pilot study demonstrated that the nasal spray formulations shortened the duration of common cold symptoms from seven days to three days (column 4, lines 53-55). Makino et al. teach, in the abstract, a pharmaceutical composition for external use with enhanced penetration of a pharmacologically active agent through the skin or mucosa, said composition comprising a pharmacologically active agent and an optically active or inactive pyroglutamic acid ester. In col. 3 lines 55-65, Makino et al. teach that in US Patent No. 4434159 a drug which is substantially unabsorbable through the mucosa of the rectum is made absorbable through the rectal mucosa by co-administration with a penetration enhancer (pyroglutamic acid or a salt thereof). Makino et al. teach, in col. 12 lines 17-40, that the compositions contain the penetration enhancer in an amount of from 0.2-25% by weight, preferably 0.5-12% by weight based on the total weight of the composition. Further the mucosa may be that of the rectum, oral cavity, nasal cavity or vagina. Makino et al. teach, in col. 14 line 1 to col. 15 (table 2 comparison 16 and 17), ointments prepared from 1 part of nifedipine, 10 parts L-pyroglutamic acid (comparison 1) or 10 parts DL-pyroglutamic acid (comparison 2), 89 parts of a gel ointment base (composed of 1 part of Carbopol 934-a mucoadhesive agent as defined in the current specification page 8 lines 1-10, 12 parts of propylene glycol, 30 parts ethanol, 1 part diisopropanolamine and 56 parts water). Thus the penetration enhancer (L- pyroglutamic acid or DL-pyroglutamic acid) is present in 10% by weight, the Carbopol 934 is present in 1% by weight, and the pharmacologically active agent is present in 1% by weight. Kuhrt et al. teach, in the abstract, that Rhinoviruses as a group are notably sensitive to inactivation in solutions

with a pH of less than 5.3: On page 924, Kuhrt et al. teach that glutaric acid (one of the organic acids currently claimed) has been demonstrated as an effective virucidal agent against rhinovirus on human skin. It would have been obvious to one of ordinary skill in the art at the time the invention was made employ the teachings of Tulin-Silver to that of Deihl to formulate a composition comprising ascorbic acid and zinc that is suitable for administration in the nasal passages as taught by Tulin-Silver. One would have been motivated to employ nasal formulations because the nasal spray formulations shortened the duration of common cold symptoms from seven days to three days as taught by Tulin-Silver. it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the ointment composition of Makino et al. comprising a penetration enhancer (pyroglutamic acid) and ointment base (that could be applied to mucosa of the rectum, oral cavity, nasal cavity or vagina), with the pharmacological composition of Deihl comprising ascorbic acid and zinc gluconate in order to formulate a composition for treatment of the common cold. One would be motivated to add the Makino et al. ointment compositions to the Deihl compositions in order to achieve enhanced penetration of the ascorbic acid and zinc gluconate and thus achieve a greater effectiveness against the common cold. One would be motivated to adjust the overall pH of the combined formulation to less than pH 5.3 as Kuhrt et al. has demonstrated that rhinoviruses are inactivated by acidic conditions wherein the overall pH is less than 5.3. One would further be motivated to use glutaric acid as an organic acid with the combined formulation either in conjunction with ascorbic acid or by itself in treating the common cold as Kuhrt et al. show that Glutaric acid is an effective virucide

against rhinovirus (on human skin). Therefore, the rejection under 35 U.S.C. 103(a) is deemed proper.

Applicants argue that Deighl never teaches or suggest that the pharmacological composition comprises a pH adjusting agent or pyroglutamic acid. This argument has been fully considered but has not been found persuasive. Makino et al. teach that in US Patent No. 4434159 a drug which is substantially unabsorbable through the mucosa of the rectum is made absorbable through the rectal mucosa by co-administration with a penetration enhancer (pyroglutamic acid or a salt thereof). , it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the ointment composition of Makino et al. comprising a penetration enhancer (pyroglutamic acid) and ointment base (that could be applied to mucosa of the rectum, oral cavity, nasal cavity or vagina), with the pharmacological composition of Deihl comprising ascorbic acid and zinc gluconate in order to formulate a composition for treatment of the common cold. One would be motivated to add the Makino et al. ointment compositions to the Deihl compositions in order to achieve enhanced penetration of the ascorbic acid and zinc gluconate and thus achieve a greater effectiveness against the common cold. Therefore, the rejection under 35 U.S.C. 103(a) is deemed proper.

Applicants argue that the examiner can not rely on the “Dissociation Constants of Organic Acids and Bases", in CRC Handbook of Chemistry and Physics, Internet 2007 to provide support for the inherency of the compounds properties because the instant application has a filing date of 19 October 2000. This argument has been fully considered but has not been found persuasive. The examiner cited “Dissociation

Constants of Organic Acids and Bases", in CRC Handbook of Chemistry and Physics, Version **1996** (77th Edition), David R. Lide, ed., Taylor and Francis, Boca Raton, FL. pp.3-15 and 3-173), which is clearly before 19 October 2000. Therefore, the rejection under 35 U.S.C. 103(a) is deemed proper.

Applicants argue that Tulin-Silver does not teach or suggest a method for treating cold or influenza virsues wherein the method comprises the step of spraying into the nasal turbinates a composition comprising from about 1% to about 20% pyroglutamic acid and from about 0.01% to about 10% organic acid having a dissociation constant from about 3.0 to about 5.0 and a pH value from about 3.5 to about 5.5 on the nasal tissues. This argument has been fully considered but has not been found persuasive. Diehl teaches, on page 2, a pharmacological composition for treatment of the common cold by spraying said composition into the oral cavity (with mucosal absorption of the composition posited as the means of administration). The composition comprises vitamin C (ascorbic acid) and a non-toxic zinc salt. In example I Table 1 Diehl teaches a suitable zinc-vitamin C composition that includes pharmaceutical grade water, ascorbic acid (1.64% by weight), sodium bicarbonate (0.14% by weight), glycerine, potassium sorbate, EDTA, zinc gluconate (1.09% by weight), L-lysine, glycine, fruit juice, sucrose, magnasweet, tween-80, trace bioflavonoids, orange flavoring and peppermint oil. Tulin-Silver teaches a composition comprising of Vitamin C (ascorbic acid) from about 15 mg to about 300 mg and zinc in the amount of 0.50 mg (column 4, lines 15-35). Tulin-Silver teach that such composition is for the treatment of relieving and shortening the duration of inflamed nasal membrane turbinates (which include allergic, infectious,

vasomotor, atrophic, hormonally-induced vasomotor instability and non-allergic causes); nasal and sinus congestion (such as that in sinus headaches associated with acute or chronic sinusitis), acute upper respiratory infections (common colds), acute or chronic allergy flare-ups of the nose, and/or acute or chronic non-allergic rhinosinusitis (column 1, lines 1-24). Tulin-Silver's pilot study demonstrated that the nasal spray formulations shortened the duration of common cold symptoms from seven days to three days (column 4, lines 53-55). Makino et al. teach, in the abstract, a pharmaceutical composition for external use with enhanced penetration of a pharmacologically active agent through the skin or mucosa, said composition comprising a pharmacologically active agent and an optically active or inactive pyroglutamic acid ester. In col. 3 lines 55-65, Makino et al. teach that in US Patent No. 4434159 a drug which is substantially unabsorbable through the mucosa of the rectum is made absorbable through the rectal mucosa by co-administration with a penetration enhancer (pyroglutamic acid or a salt thereof). Makino et al. teach, in col. 12 lines 17-40, that the compositions contain the penetration enhancer in an amount of from 0.2-25% by weight, preferably 0.5-12% by weight based on the total weight of the composition. Further the mucosa may be that of the rectum, oral cavity, nasal cavity or vagina. Makino et al. teach, in col. 14 line 1 to col. 15 (table 2 comparison 16 and 17), ointments prepared from 1 part of nifedipine, 10 parts L-pyroglutamic acid (comparison 1) or 10 parts DL-pyroglutamic acid (comparison 2), 89 parts of a gel ointment base (composed of 1 part of Carbopol 934-a mucoadhesive agent as defined in the current specification page 8 lines 1-10, 12 parts of propylene glycol, 30 parts ethanol, 1 part diisopropanolamine and 56 parts water).

Thus the penetration enhancer (L- pyroglutamic acid or DL-pyroglutamic acid) is present in 10% by weight, the Carbopol 934 is present in 1% by weight, and the pharmacologically active agent is present in 1% by weight. Kuhrt et al. teach, in the abstract, that Rhinoviruses as a group are notably sensitive to inactivation in solutions with a pH of less than 5.3: On page 924, Kuhrt et al. teach that glutaric acid (one of the organic acids currently claimed) has been demonstrated as an effective virucidal agent against rhinovirus on human skin. It would have been obvious to one of ordinary skill in the art at the time the invention was made employ the teachings of Tulin-Silver to that of Deihl to formulate a composition comprising ascorbic acid and zinc that is suitable for administration in the nasal passages as taught by Tulin-Silver. One would have been motivated to employ nasal formulations because the nasal spray formulations shortened the duration of common cold symptoms from seven days to three days as taught by Tulin-Silver. it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the ointment composition of Makino et al. comprising a penetration enhancer (pyroglutamic acid) and ointment base (that could be applied to mucosa of the rectum, oral cavity, nasal cavity or vagina), with the pharmacological composition of Deihl comprising ascorbic acid and zinc gluconate in order to formulate a composition for treatment of the common cold. One would be motivated to add the Makino et al. ointment compositions to the Deihl compositions in order to achieve enhanced penetration of the ascorbic acid and zinc gluconate and thus achieve a greater effectiveness against the common cold. One would be motivated to adjust the overall pH of the combined formulation to less than pH 5.3 as Kuhrt et al. has

demonstrated that rhinoviruses are inactivated by acidic conditions wherein the overall pH is less than 5.3. One would further be motivated to use glutaric acid as an organic acid with the combined formulation either in conjunction with ascorbic acid or by itself in treating the common cold as Kuhrt et al. show that Glutaric acid is an effective virucide against rhinovirus (on human skin). Therefore, the rejection under 35 U.S.C. 103(a) is deemed proper.

Applicants argue that Makino fails to teach or suggest a method for treating cold or influenza virsues wherein the method comprises the step of spraying into the nasal turbinates a composition comprising from about 1% to about 20% pyroglutamic acid and from about 0.01% to about 10% organic acid having a dissociation constant from about 3.0 to about 5.0 and a pH value from about 3.5 to about 5.5 on the nasal tissues. This argument has been fully considered but has not been found persuasive. Diehl teaches, on page 2, a pharmacological composition for treatment of the common cold by spraying said composition into the oral cavity (with mucosal absorption of the composition posited as the means of administration). The composition comprises vitamin C (ascorbic acid) and a non-toxic zinc salt. In example I Table 1 Diehl teaches a suitable zinc-vitamin C composition that includes pharmaceutical grade water, ascorbic acid (1.64% by weight), sodium bicarbonate (0.14% by weight), glycerine, potassium sorbate, EDTA, zinc gluconate (1.09% by weight), L-lysine, glycine, fruit juice, sucrose, magnasweet, tween-80, trace bioflavonoids, orange flavoring and peppermint oil. Tulin-Silver teaches a composition comprising of Vitamin C (ascorbic acid) from about 15 mg to about 300 mg and zinc in the amount of 0.50 mg (column 4, lines 15-35). Tulin-

Silver teach that such composition is for the treatment of relieving and shortening the duration of inflamed nasal membrane turbinates (which include allergic, infectious, vasomotor, atrophic, hormonally-induced vasomotor instability and non-allergic causes); nasal and sinus congestion (such as that in sinus headaches associated with acute or chronic sinusitis), acute upper respiratory infections (common colds), acute or chronic allergy flare-ups of the nose, and/or acute or chronic non-allergic rhinosinusitis (column 1, lines 1-24). Tulin-Silver's pilot study demonstrated that the nasal spray formulations shortened the duration of common cold symptoms from seven days to three days (column 4, lines 53-55). Makino et al. teach, in the abstract, a pharmaceutical composition for external use with enhanced penetration of a pharmacologically active agent through the skin or mucosa, said composition comprising a pharmacologically active agent and an optically active or inactive pyroglutamic acid ester. In col. 3 lines 55-65, Makino et al. teach that in US Patent No. 4434159 a drug which is substantially unabsorbable through the mucosa of the rectum is made absorbable through the rectal mucosa by co-administration with a penetration enhancer (pyroglutamic acid or a salt thereof). Makino et al. teach, in col. 12 lines 17-40, that the compositions contain the penetration enhancer in an amount of from 0.2-25% by weight, preferably 0.5-12% by weight based on the total weight of the composition. Further the mucosa may be that of the rectum, oral cavity, nasal cavity or vagina. Makino et al. teach, in col. 14 line 1 to col. 15 (table 2 comparison 16 and 17), ointments prepared from 1 part of nifedipine, 10 parts L-pyroglutamic acid (comparison 1) or 10 parts DL-pyroglutamic acid (comparison 2), 89 parts of a gel ointment base (composed of 1 part of Carbopol 934-a

mucoadhesive agent as defined in the current specification page 8 lines 1-10, 12 parts of propylene glycol, 30 parts ethanol, 1 part diisopropanolamine and 56 parts water). Thus the penetration enhancer (L- pyroglutamic acid or DL-pyroglutamic acid) is present in 10% by weight, the Carbopol 934 is present in 1% by weight, and the pharmacologically active agent is present in 1% by weight. Kuhrt et al. teach, in the abstract, that Rhinoviruses as a group are notably sensitive to inactivation in solutions with a pH of less than 5.3: On page 924, Kuhrt et al. teach that glutaric acid (one of the organic acids currently claimed) has been demonstrated as an effective virucidal agent against rhinovirus on human skin. It would have been obvious to one of ordinary skill in the art at the time the invention was made employ the teachings of Tulin-Silver to that of Deihl to formulate a composition comprising ascorbic acid and zinc that is suitable for administration in the nasal passages as taught by Tulin-Silver. One would have been motivated to employ nasal formulations because the nasal spray formulations shortened the duration of common cold symptoms from seven days to three days as taught by Tulin-Silver. it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the ointment composition of Makino et al. comprising a penetration enhancer (pyroglutamic acid) and ointment base (that could be applied to mucosa of the rectum, oral cavity, nasal cavity or vagina), with the pharmacological composition of Deihl comprising ascorbic acid and zinc gluconate in order to formulate a composition for treatment of the common cold. One would be motivated to add the Makino et al. ointment compositions to the Deihl compositions in order to achieve enhanced penetration of the ascorbic acid and zinc gluconate and thus achieve a

greater effectiveness against the common cold. One would be motivated to adjust the overall pH of the combined formulation to less than pH 5.3 as Kuhrt et al. has demonstrated that rhinoviruses are inactivated by acidic conditions wherein the overall pH is less than 5.3. One would further be motivated to use glutaric acid as an organic acid with the combined formulation either in conjunction with ascorbic acid or by itself in treating the common cold as Kuhrt et al. show that Glutaric acid is an effective virucide against rhinovirus (on human skin). Therefore, the rejection under 35 U.S.C. 103(a) is deemed proper.

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parts L-pyroglutamic acid (comparison 1) or 10 parts DL-pyroglutamic acid (comparison 2), 89 parts of a gel ointment base (composed of 1 part of Carbopol 934-a mucoadhesive agent as defined in the current specification page 8 lines 1-10, 12 parts of propylene glycol, 30 parts ethanol, 1 part diisopropanolamine and 56 parts water). Thus the penetration enhancer (L- pyroglutamic acid or DL-pyroglutamic acid) is present in 10% by weight, the Carbopol 934 is present in 1% by weight, and the pharmacologically active agent is present in 1% by weight. Kuhrt et al. teach, in the abstract, that Rhinoviruses as a group are notably sensitive to inactivation in solutions with a pH of less than 5.3: On page 924, Kuhrt et al. teach that glutaric acid (one of the organic acids currently claimed) has been demonstrated as an effective virucidal agent against rhinovirus on human skin. It would have been obvious to one of ordinary skill in the art at the time the invention was made employ the teachings of Tulin-Silver to that of Deihl to formulate a composition comprising ascorbic acid and zinc that is suitable for administration in the nasal passages as taught by Tulin-Silver. One would have been motivated to employ nasal formulations because the nasal spray formulations shortened the duration of common cold symptoms from seven days to three days as taught by Tulin-Silver. it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the ointment composition of Makino et al. comprising a penetration enhancer (pyroglutamic acid) and ointment base (that could be applied to mucosa of the rectum, oral cavity, nasal cavity or vagina), with the pharmacological composition of Deihl comprising ascorbic acid and zinc gluconate in order to formulate a composition for treatment of the common cold. One would be motivated to add the

Makino et al. ointment compositions to the Deihl compositions in order to achieve enhanced penetration of the ascorbic acid and zinc gluconate and thus achieve a greater effectiveness against the common cold. One would be motivated to adjust the overall pH of the combined formulation to less than pH 5.3 as Kuhrt et al. has demonstrated that rhinoviruses are inactivated by acidic conditions wherein the overall pH is less than 5.3. One would further be motivated to use glutaric acid as an organic acid with the combined formulation either in conjunction with ascorbic acid or by itself in treating the common cold as Kuhrt et al. show that Glutaric acid is an effective virucide against rhinovirus (on human skin). Therefore, the rejection under 35 U.S.C. 103(a) is deemed proper.

Applicants are respectively reminded that, in response to applicants arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

For the ease of the applicant the previous office action dated 6 November 2009 is reproduced below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4-7, 20-22, 26, 27, 54 and 57-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diehl (EP0505374B1) of record and Tulin-Silver (U.S. Patent 5,508,282) in view of Makino et al. (US Patent No. 4789667) of record and in view of Kuhrt et al. (Virucidal Activity of Glutaric Acid and Evidence for Dual Mechanism of Action, Antimicrobial Agents and Chemotherapy, Dec. 1984, pp. 924-927), of record and in further view of "Dissociation Constants of Organic Acids and Bases", in CRC Handbook of Chemistry and Physics, Version 1996 (77th Edition), David R. Lide, ed., Taylor and Francis, Boca Raton, FL. pp.3-15 and 3-173) of record.

Diehl teaches, on page 2, a pharmacological composition for treatment of the common cold by spraying said composition into the oral cavity (with mucosal absorption of the composition posited as the means of administration). The composition comprises vitamin C (ascorbic acid) and a non-toxic zinc salt. In example I Table 1 Diehl teaches a suitable zinc-vitamin C composition that includes pharmaceutical grade water, ascorbic acid (1.64% by weight), sodium bicarbonate (0.14% by weight), glycerine, potassium sorbate, EDTA, zinc gluconate (1.09% by weight), L-lysine, glycine, fruit juice, sucrose, magnasweet, tween-80, trace bioflavonoids, orange flavoring and peppermint oil.

Diehl does not teach direct spraying of the composition into the nasal turbinates, or the use of pyroglutamic acid in the composition.

Tulin-Silver teaches a composition comprising of Vitamin C (ascorbic acid) from about 15 mg to about 300 mg and zinc in the amount of 0.50 mg (column 4, lines 15-35). Tulin-Silver teach that such composition is for the treatment of relieving and shortening the duration of inflamed nasal membrane turbinates (which include allergic, infectious, vasomotor, atrophic, hormonally-induced vasomotor instability and non-allergic causes); nasal and sinus congestion (such as that in sinus headaches associated with acute or chronic sinusitis), acute upper respiratory infections (common colds), acute or chronic allergy flare-ups of the nose, and/or acute or chronic non-allergic rhinosinusitis (column 1, lines 1-24). Tulin-Silver's pilot study demonstrated that the nasal spray formulations shortened the duration of common cold symptoms from seven days to three days (column 4, lines 53-55).

Makino et al. teach, in the abstract, a pharmaceutical composition for external use with enhanced penetration of a pharmacologically active agent through the skin or mucosa, said composition comprising a pharmacologically active agent and an optically active or inactive pyroglutamic acid ester. In col. 3 lines 55-65, Makino et al. teach that in US Patent No. 4434159 a drug which is substantially unabsorbable through the mucosa of the rectum is made absorbable through the rectal mucosa by co-administration with a penetration enhancer (pyroglutamic acid or a salt thereof). Makino et al. teach, in col. 12 lines 17-40, that the compositions contain the penetration enhancer in an amount of from 0.2-25% by weight, preferably 0.5-12% by weight based on the total weight of the composition. Further the mucosa may be that of the rectum,

oral cavity, nasal cavity or vagina. Makino et al. teach, in col. 14 line 1 to col. 15 (table 2 comparison 16 and 17), ointments prepared from 1 part of nifedipine, 10 parts L-pyroglutamic acid (comparison 1) or 10 parts DL-pyroglutamic acid (comparison 2), 89 parts of a gel ointment base (composed of 1 part of Carbopol 934-a mucoadhesive agent as defined in the current specification page 8 lines 1-10, 12 parts of propylene glycol, 30 parts ethanol, 1 part diisopropanolamine and 56 parts water). Thus the penetration enhancer (L- pyroglutamic acid or DL-pyroglutamic acid) is present in 10% by weight, the Carbopol 934 is present in 1% by weight, and the pharmacologically active agent is present in 1% by weight.

Kuhrt et al. teach, in the abstract, that Rhinoviruses as a group are notably sensitive to inactivation in solutions with a pH of less than 5.3: On page 924, Kuhrt et al. teach that glutaric acid (one of the organic acids currently claimed) has been demonstrated as an effective virucidal agent against rhinovirus on human skin.

It would have been obvious to one of ordinary skill in the art at the time the invention was made employ the teachings of Tulin-Silver to that of Deihl to formulate a composition comprising ascorbic acid and zinc that is suitable for administration in the nasal passages as taught by Tulin-Silver. One would have been motivated to employ nasal formulations because the nasal spray formulations shortened the duration of common cold symptoms from seven days to three days as taught by Tulin-Silver. Thus, one of ordinary skill would have a reasonable expectation of success that by employing the teachings of Tulin-Silver to that of Deihl to formulate a composition comprising

ascorbic acid and zinc that is suitable for administration in the nasal passages as taught by Tulin-Silver, one would shorten the duration of the common cold.

Moreover, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the ointment composition of Makino et al. comprising a penetration enhancer (pyroglutamic acid) and ointment base (that could be applied to mucosa of the rectum, oral cavity, nasal cavity or vagina), with the pharmacological composition of Deihl comprising ascorbic acid and zinc gluconate in order to formulate a composition for treatment of the common cold. One would be motivated to add the Makino et al. ointment compositions to the Deihl compositions in order to achieve enhanced penetration of the ascorbic acid and zinc gluconate and thus achieve a greater effectiveness against the common cold. One would be motivated to adjust the overall pH of the combined formulation to less than pH 5.3 as Kuhrt et al. has demonstrated that rhinoviruses are inactivated by acidic conditions wherein the overall pH is less than 5.3. One would further be motivated to use glutaric acid as an organic acid with the combined formulation either in conjunction with ascorbic acid or by itself in treating the common cold as Kuhrt et al. show that Glutaric acid is an effective virucide against rhinovirus (on human skin).

The examiner respectfully points out the following from MPEP 2144.06:
"It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from

their having been individually taught in the prior art." *In re* Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

The determination of optimal viscosity, optimal pH ranges, and optimal pKa ranges are matters of routine experimentation.

The examiner respectfully points out the following from MPEP 2144.05: "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." I*n re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); see also Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969); Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed.Cir. 1990); and *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

With regards to requirement of pKa being that of 3.0-5.0 of the organic acids as claimed. Examiner respectively points out that the properties of compounds are not deemed patentable. Thus, the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). >In In re Crish, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004),* the court held

that the claimed promoter sequence obtained by sequencing a prior art plasmid that was not previously sequenced was anticipated by the prior art plasmid which necessarily possessed the same DNA sequence as the claimed oligonucleotides. The court stated that "just as the discovery of properties of a known material does not make it novel, the identification and characterization of a prior art material also does not make it novel." Futhermore, as evidentiary data that pKa are properties of pyroglutamic acid, the "Dissociation Constants of Organic Acids and Bases", in CRC Handbook of Chemistry and Physics demonstrates that the pKa requirement of 3.0-5.0 of the organic acids as claimed are the same physical/chemical properties of the claimed organic acids (see pages 3-15, 3-173).

For these reasons, the claimed subject matter is deemed to fail to be patentably distinguishable over the state of the art as represented by the cited reference. The claims are therefore, properly rejected under 35 U.S.C. 103.In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Claims 1, 4-7, 20-22, 26, 27, 54 and 57-60 are rejected.

No claims are allowed.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHRIEN CRUZ whose telephone number is

(571)270-5238. The examiner can normally be reached on Mon - Thurs 7:00am - 5:00pm with every Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Padmanabhan Sreeni can be reached on (571) 272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KATHRIEN CRUZ/
Examiner, Art Unit 1628

/San-ming Hui/
Primary Examiner, Art Unit 1628